APPENDIX J

Summary of Wastewater Discharges

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Site History Report – October 2004
Former Ingersoll Rand Company Facility
Phillipsburg, New Jersey

J.1 Storm and Sanitary Sewers

The storm sewer line system onsite is complex; drains are located across the site as shown in Figures included in Appendices D and G (Sanborn and FIA maps and IR Map # MD1440, 1947). Based on a review of these figures, the storm sewers in the foundry area lead to a stormwater detention basin in the northwest portion of the site. Drainage from the northeast and north central section of the site was connected to the spray pond and Inverse Pond system. The 1947 storm sewer map (Map #MD1440) indicates that the southern buildings in the compressor division most likely discharged to the southeastern field south of the Spray Pond, although the map also noted that the location of the discharge pipe was not certain. Also noted on the 1947 storm sewer map there was a valve located between Building #14 (Heat Treat) and Building #8 (Compressor Erecting) allowing the storm water to flow into the sanitary system. In the eighties, the storm water system continued to discharge into the sanitary system according to a 1986 Capsule Laboratories Waste Disposal Cost Reduction Program Update questionnaire. Presently, the storm sewer system is divided across the site, everything west of Building #7 (Shipping and Receiving) drains into the stormwater retention pond west of the former foundry and then to the Philipsburg storm sewer network. Stormwater runoff on the eastern side of the plant is channeled into the Spray Pond, which discharges to the Inverse Ponds, then to the ephemeral stream, and finally into Lopatcong Creek.

The sanitary sewer lines across the site have evolved over the years. In the early stages of the site there was a partial sanitary system in place with cesspools and septic tanks located across the site (Map #MD1440, 1947 and FIA/Sanborn maps). Presently, the site sanitary sewer discharges to the Phillipsburg sanitary sewer network, which is received by the Phillipsburg Sewer Utility (PSU).

Based on historical documentation, six septic tanks were located southeast of Building #13 (Machine Shop) and northeast of Building #29 (Locomotive House). These septic tanks were encountered during an investigation of fuel oil pumping in the 1990's and were removed, according to the 1995 report titled, *Status of Remedial Investigation/Remedial Action on the Buried and Abandoned No. 2 and No. 6 Fuel Oil Lines,* prepared by Tellus Consultants.

According to the historical review, there were five cesspools (un-numbered map, 1904; Map #MD603, 1930; and Map #MD1440, 1947) located at the facility. A cesspool located on the west end of Building #89 (Machine Shop) was in operation but its current status is not known. A second cesspool was located in the area between Buildings #23 (Sandblast) and #83 (Drill Storage/Oil House), a third was

located between the east end of Building #17 (Drill Manufacturing) and the west of Building #61 (Pickling Shed), a fourth was located near the northwest corner of Building #17, and a fifth was located southeast of Building #13 (Machine Shop) and northwest of Building #29 (Locomotive Shop).

A catch basin and dry well are identified to the west of Building #11 and south of Building #6 (main office).

Appendix H contains a summary of building activities across the site. Where documentation was available, ENSR referenced known floor drains, trenches, catch basins, and contact and non-contact cooling water if known.

J.2 Surface Water

J.2.1 Spray Pond

The spray pond consists of a 2.5-million gallon concrete-lined reservoir containing non-contact cooling water and stormwater. Based on its appearance on the 1905 FIA map, this reservoir was likely built at the time of the facility's original construction. Plans for its construction (undated) indicate that it was excavated into a hillside to the north and west, and was contained using levee-styled retention walls on the south and east sides of the structure.

In 1910, a shallow addition to the pond was added at the entrance of the re-circulated cooling water to the pond, presumably to aid in its cooling. In 1918, Building #28 (Pump House) and associated piping were added which allowed the pond water to be sprayed over the reservoir surface in order to increase the rate of cooling within the spray pond. Based on aerial photography, this pumping and spraying equipment was upgraded between 1974 and 1981 to reflect the current pond equipment and appearance (Aerial Photos dated 1974 and 1981).

The spray pond has historically received waters from stormwater runoff, non-contact cooling water recirculation, and water from pump testing areas, as well as powerhouse boiler blowdown water. Waters greater than the pond's capacity have always been discharged by way of an overflow pipe to downstream areas, ultimately arriving at a local creek. One drain is known to exist for the pond, and another is shown on 1905 plans for the pond, but is not known to exist currently.

Based on aerial photography, oil skimming and collection equipment was added immediately upstream of the entrance point of the recirculated non-contact cooling water prior to 1937. These consist of a brill skimmer (AOC-22) and a weir-based oil-water separation area. Another weir-based oil-water separator was added downstream of the spray pond around 1949 (untitled/un-numbered drawing dated 11/12/48).

The Spray Pond remains in use at the facility as a receptacle of non-contact cooling water and storm water, and currently discharges to downstream treatment ponds and ultimately to local surface waters under a Discharge to Surface Water (DSW) permit.

J.2.2 Inverse Ponds

The facility's two Inverse Ponds appear to have been installed to serve as oil containment structures, and are situated downstream of both the spray pond and the facility bulk oil storage tanks. The Inverse Ponds feature inverted discharges where effluent water exiting the ponds must rise through a section of vertical pipe from the bottom of the ponds by displacement, thus creating a water body capable of retaining oil on its surface by displacing the denser water.

The northern Inverse Pond appears in the 1939 aerial photo, revealing that it was constructed prior to that time (although no construction documentation is known to exist). At this time, a small pond or depression is visible immediately to the northern pond's eastern side. This depression is likely a sinkhole that was identified in facility records to be located in this general vicinity.

The southern Inverse Pond first appears in the 1951 aerial photograph of the facility. In this photo, the small pond, sinkhole, or depression adjacent to the northern pond is also absent.

The two Inverse Ponds are currently lined with gunite. Facility drawing #MD 3141 (undated) notes that proposed renovations to the northern Inverse Pond are to include excavation of the pond's banks to remove oil. The gunite lining may have been added at the time the southern pond was created.

Sediment at the bottom of the Inverse Ponds and soils below the Inverse Ponds are known to contain elevated levels of TPHC, PAH, PCBs, and/or metals; the gunite linings of one or both ponds are known to leak (Tellus, 1994; ENSR, May 2001; and ENSR, 2002).

The Inverse Ponds remain onsite, and serve as part of the facilities stormwater conveyance to the local surface water and as a retention structure. Bulk fuel is no longer stored in the aboveground bulk fuel storage area, and thus the ponds are no longer needed for spill prevention and control purposes. These ponds were designated as AOC-31 in the 1994 *Draft RIWP*.

Four ponds located on the western side of the facility appear in the 1951 aerial photograph. The northern two ponds (AOC-32) were formerly identified as fire ponds and were excavated in the late 1980's as part of the development of this land into a larger stormwater retention pond. According to the 1976 Spill Prevention, Control, and Countermeasure (SPCC) plan for the facility, these ponds had an inverse overflow capability and discharged to the municipal stormwater sewer. They are not currently present onsite.

The other two ponds on the western side of the facility were located southwest of Building #1 and were much smaller. Based on a 1976 SPCC plan these were equipped with inverse discharges. It is unclear what the exact purposes of these ponds were, but in the 1980s these ponds were filled and the area was re-graded during the construction of a Roseberry Street contractor entrance.